

a step in which a workpiece is placed at a mounting surface of an electrode provided inside a plasma processing chamber;

a step in which said workpiece is vacuum-held by applying a high level DC voltage to an electrostatic chuck provided at said mounting surface of said electrode;

a step in which plasma processing is performed on said workpiece under a reduced pressure atmosphere;

a step in which said electrode is moved from an upper plasma processing position to a lower delivery position after said plasma processing ends;

a step of sustaining a gas inside a delivery chamber at a higher pressure than said reduced pressure atmosphere; and

And
a step of opening a means for opening/closing which switchably connects said delivery chamber to said plasma processing chamber for transfer of said workpiece from/to said plasma processing chamber, wherein said step of opening introduces said gas from inside said delivery chamber into said plasma processing chamber before said electrode reaches said delivery position.

13. (Amended) A plasma processing method according to claim 12, further comprising;

a step in which a reverse high level DC voltage is applied to said electrostatic chuck until immediately after said means for opening/closing is opened, the voltage having a reverse polarity from the polarity of said high level DC voltage applied to said electrostatic chuck while said electrostatic chuck is vacuum-holding said workpiece.

14. (Amended) A plasma processing method according to claim 12, wherein before said means for opening/closing is opened, an inert gas supplied from an inert gas supply system sustains the atmosphere inside said delivery chamber at a higher pressure than the pressure inside said plasma processing chamber.

15. (Amended) A plasma processing method according to claim 12, wherein the pressure inside said delivery chamber and the pressure inside said plasma processing chamber are set roughly equal to each other after said means for opening/closing is opened.

16. (Amended) A plasma processing method according to claim 12, wherein said workpiece is a semiconductor wafer or a glass substrate.

17. (Amended) A plasma processing method according to claim 12, wherein any one of plasma etching processing, plasma CVD processing and plasma ashing processing is implemented in said plasma processing method.

18. (Amended) A plasma processing method, comprising:
a step in which a workpiece is placed at a mounting surface of an electrode provided inside a plasma processing chamber;
a step in which said workpiece is vacuum-held by applying a high level DC voltage to an electrostatic chuck provided at said mounting surface of said electrode;

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

a step in which plasma processing is performed on said workpiece under a reduced pressure atmosphere;

a step of sustaining a gas inside a delivery chamber at a higher pressure than said reduced pressure atmosphere;

a step of opening a means for opening/closing which switchably connects said delivery chamber to said plasma processing chamber for transfer of said workpiece to / from said plasma processing chamber,

wherein said step of opening introduces said gas from inside said delivery chamber into said plasma processing chamber after said plasma processing is completed.

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19. (Amended) A plasma processing method according to claim 18, wherein before said means for opening/closing is opened, an inert gas supplied from an inert gas supply system sustains the atmosphere inside said delivery chamber at a higher pressure than the pressure inside said plasma processing chamber.

20. (Amended) A plasma processing method according to claim 18, wherein the pressure inside said delivery chamber and the pressure inside said plasma processing chamber are set roughly equal to each other after said means for opening/closing is opened.

21. (Amended) A plasma processing method according to claim 18, wherein said workpiece is a semiconductor wafer or a glass substrate.

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

22. (Amended) A plasma processing method according to claim 18, wherein
any one of plasma etching processing, plasma CVD processing and
plasma ashing processing is implemented in said plasma processing method.

Amended

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FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com